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News Letter

Christmas Greetings

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Air Corps News Letter

No. 24

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Air Corps

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The chief purpose of this publication is to distribute information on aeronautics to the flying personnel in the Regular Army, Reserve Corps, National Guard, and others connected with aviation.

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GREETINGS FROM THE CHIEF OF THE AIR CORPS

It affords me extreme pleasure to extend, through the columns of the Air Corps News Letter, my sincere wishes to all Air Corps personnel for a very Merry Christmas and a Happy and Prosperous New Year.

This coming Christmas marks the first anniversary of my tenure of office as Chief of the Air Corps, and I am glad of this opportunity to express my warmest appreciation for the loyalty and wholehearted support and cooperation which have been extended to me.

This past year, it seems to me, has been one of the most interesting in the history of the youngest combat branch of the Army. Extraordinary developments in aircraft performance have forced us to change the heretofore existing organization, both from administrative and tactical standpoints, and to create new organizations with new functions to perform.

The rapid changes in aircraft development and all the other changes incident thereto make us all realize that we belong to a branch of the Army of the United States in which our energies can never be relaxed, and in which we continually face new problems - problems for which we must promptly find a solution in order to be ready for any emergency which may confront us.

In the past the Air Corps has been a small but highly efficient arm. The high degree of efficiency attained by our personnel - officers, enlisted and civilian - is particularly gratifying to me and to all connected with American aviation. Recently, some personnel increases have been made and a large increase in the airplane strength has been authorized. These make this Christmas particularly happy for the Army Air Corps, and bright prospects for a larger and better equipped Army aviation foreshadow a Happy New Year for all.

O. WESTOVER,
Major General, Chief of the Air Corps

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GREETINGS FROM THE CHIEF OF THE G.H.Q. AIR FORCE

The approaching holiday season, with its attendant reduction of training activities, affords an excellent opportunity to reflect on past accomplishments and to plan for the future.

The past year and a half has been a period of high pressure thought and work on the part of the entire Air Corps. Many of the problems of training, equipment and organization, created by the formation of the GHQ Air Force on March 1, 1935, have been solved. For others, a solution is still being sought.

I wish to express to all personnel of the GHQ Air Force my sincere appreciation of the splendid manner in which they have met and solved the problems with which they have been confronted. I thank the Materiel Division, the Tactical and Technical Schools, the Training Center and all other agencies of the Chief of the Air Corps for their fine spirit of helpful cooperation.

To members of the GHQ Air Force, past, present and future, in other words to the entire Air Corps, best personal wishes for a Merry Christmas and Successful New Year.

F. M. ANDREWS,
Major General, Air Corps, U.S.A.,
Commanding.

ROUND TRIP FLIGHT TO PANAMA
By the Langley Field Correspondent

The 21st Reconnaissance Squadron Avigation Section, on November 15th, completed one of the most interesting and instructive flights that has been made by an avigation unit. With a Douglas OA-5 as the vehicle of transportation, the flight was made from Langley Field, Va., to France Field, Canal Zone, via Miami, Florida, and return over the same route. Miami was the only intermediate stop on the outward and return journeys.

The following personnel participated in the flight, and were assigned to duties as follows:

Major V.J. Meloy, Flight Commander and Navigator.
Captain H.C. Downey, Navigation and Engineering Officer.
Captain A.Y. Smith, Instructor.
1st Lieut. D.R. Gibbs, Navigator.
1st Lieut. E.L. Tucker, Navigator and Communications Officer.
1st Lieut. J.A. Miller, Instructor.
Staff Sergeant W.B. Buff, Crew Chief.
Private, 1st Class, K.E. Trout, Radio Operator.

Major Meloy, Captain Downey and 1st Lieuts. Gibbs and Tucker are completing the present Navigation Class at Langley Field.

Excerpts from the log of the flight are as follows:

Take-off from Langley Field, Va., at 0912 November 9th.

Landed at Coast Guard Station Miami at 1530, where the flight remained over night. The distance from Langley Field to Miami was 820 Statute miles, and was made direct.

Tuesday, November 10th, with 1200 gallons of gasoline aboard, the ship got into the air at 0749 and headed south on the 1125-mile stretch to the Canal Zone. Point Colorados, Cuba, was passed at 0958, and the long trek across the Caribbean began. As this is the rainy season in Panama, it was expected that tropical showers would be encountered, but the sun and Dame Fortune smiled,and the Canal Zone was reached at 1645 without encountering anything but an unlimited ceiling. Due to a cross wind at France Field, the snip was landed in the water and taxied up the ramp at the adjoining Naval Air Station.

Maintenance was begun on the ship tne following morning, and on Thursday afternoon the ship was flown to Albrook Field, so that the Army officers stationed on the Pacific side might inspect the airplane. On Friday, 13th, the ship returned to France Field and was fully serviced for the take-off the following day.

November 14th, the take-off was made at 0824 from Limon Bay. Some difficulty was experienced in getting off due to the heavy load and glassy water with no wind. A few showers were flown through on the return trip, but otherwise the trip was uneventful. Landing was made at the Coast Guard Station at Miami,Fla. at 1732. The following morning, the ship took off for Langley Field, Virginia, at 1007 and landed at 1645.

On the flight, the four students alternated as Dead Reckoning and Celestial Navigators, and everyone took his turn as pilot. The navigation was successful, as each objective was reached with an average error of less than one degree.

The reception accorded the personnel of the flight in Panama proved the intense interest in modern aircraft in the Canal Zone. Not only the Air Corps, but all branches of the service were greatly interested in the airplane and in the success of the flight. Everyone in the Canal Zone seemed to be "Air Minded".

During the flight from Langley to Miami, radio contact was maintained constantly with either Langley Field or the Coast Guard until Quarry Heights was picked up. It was interesting to note that contact was made by voice with Albrook Field on the return trip when only 150 miles from Cuba, or a distance of 720 miles. Contact was maintained with Quarry Heights until landing at Miami.

The personnel of the flight are greatly endebted to the personnel in the Canal Zone who worked unsparingly to make the flight a success. Particularly are they indebted to Major General W.B. Butner, Brig.Gen. George H. Brett and Lt. Col. Richard Ballard.

In Miami, the assistance rendered by Commander Von Paulson, in command of the Coast Guard Station was invaluable. Pan-American Airways cooperated to the fullest extent by giving accurate and timely weather reports to the Coast Guard and Army stations in contact with the plane, so they could be relayed to the ship in flight.

This flight was particularly instructive to the navigation students, as it gave them ample opportunity to navigate on long stretches with no check points. Only 456 miles of the total distance flown of 3890 miles were over land. The ship functioned perfectly at all times and everything in connection with the flight worked with precision, thus insuring success all the way around.

The most amusing incident of the flight was the sudden realization that there were four persons in the front gunners' compartment as the ship neared Panama. Eight pairs of eyes are still recovering from the strain of searching for land when it was known land was near.

V-7178, A.C.

MILITARY COMPETITIONS IN HAWAIIAN DEPARTMENT

In the week of November 9th, all units of the Hawaiian Department were engaged in the Hawaiian Department Military Competitions, an annual event inaugurated this year by Major General Hugh A. Drum. The 18th Composite Wing, represented by its components, the 5th Composite Group, Luke Field, and the 18th Pursuit Group, Wheeler Field, participated in military events in competition with other organizations in such activities as recruit drill, tent pitching, personal appearance and equipment events, and events for motor transportation. In addition, there were a number of Air Corps flying events. As a result of these competitions, the Air Corps in Hawaii enjoys the satisfaction of having beaten many of the other outfits at their own game.

When the final percentages were published, it was found that the 5th Composite Group had to defer to the 18th Pursuit Group with their splendid score of 98.8%. However, the 5th Composite Group, with a score of 91.1%, forced the "Pursuiters" to extend themselves to the utmost.

Although the Group from Wheeler Field excelled in the parade ground events, the 5th Composite Group distinguished itself by beating the entire Hawaiian Department in the pistol firing competition. The Luke Field team, headed by 1st Lieut. Carlyle W. Phillips, included Sergeants S.D. Peters and T.F. Taylor, Privates J.H. Purnell and Paul H. Louden. It defeated seventeen other competitors to take the match. Private Loudon, who is serving in his first enlistment, turned in the second highest individual score in the competition with a score of 187 out of a possible 200.

Turning to the Air Corps Events, Luke Field's interest was centered in Event 46 - "High Altitude Bombing" and Event 52 - "Reconnaissance for Observation Squadrons." The former was conducted at Waimanalo, where a target, base line with end observation stations, and an operations tent housing long and short wave radio sets and field telephones had been set up. The competition was run according to the rules of T.R. 440-40 (tentative) and served as a service test of the latter. The winning team proved to be 2nd Lieut. Cady R. Bullock, Air Reserve, pilot, and 2nd Lieut. Fred C. Johnson, Air Reserve, bomber, both of the 72nd Bombardment Squadron, with a score of 13.8 mils. The bombing altitude was 10,000 feet.

The 23rd and 72nd Bombardment Squadrons were each represented by three teams. Of the six teams, the 72nd Squadron took first, second and fourth places. The result might have been different had not 2nd Lieuts. William C. Capp and Norman L. Callish, Air Reserve, been forced to withdraw due to a defective bomb sight after dropping only three bombs. Due to the late hour, it was not practicable to allow them to repeat.

The Reconnaissance event was hotly contested and afforded elements of suspense and excitement. On the morning of the contest, the Pursuit Group, by arrangement, distributed a number of Pursuit and Attack planes on certain of the outlying fields on Oahu. A number of these airplanes were elaborately camouflaged. Others were left "in the clear." The mission was to reconnoitre these fields and on return submit a written report of the number and type of airplanes observed. One hour was allowed to complete the mission. For each minute over the hour, a penalty was assessed. Radio was injected with the problem by requiring each team to report their position at a certain time in accordance with the latest prescribed radio procedure. The event was won by the team consisting of 1st Lieut. Carlyle W. Phillips, pilot, and 1st Lieut. Cordes F. Tieman, observer, both of the 50th Squadron, who missed a perfect score only by failing to report two of the thirty airplanes involved. First Lieut. Charles F. Born, Commanding Officer, 50th Observation Squadron, takes great satisfaction in the fact that his Squadron took first, second and third places in this event.

The only air event in which Luke Field came into direct conflict with Wheeler Field was Event 49 - "Accuracy Landings." In this event, each Pursuit, Attack and Bombardment Squadron (Observation omitted) were allowed to enter three teams. The object was to stop with the tail wheel on the center of a circle after a glide from 1,000 feet with power off. First Lieut. H.L. Sanders, 6th Pursuit Squadron, was the winner, missing the center by a scant one inch with his "pea shooter." However, Luke Field is proud of the performance of 1st Lieut. William L. Travis, who stopped his five-ton Keystone B-4 within 5½ inches of the pin. It is rumored that the Wheeler Field "Pursuiters" greatly simplified the problem by adjusting the idling speed of their motors so that the P-12E's rolled indefinitely, it remaining for the pilot only to judge the correct moment for "standing on the brakes."

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Three Air Reserve officers were assigned to active duty extending into the year 1939; 2nd Lieuts. John Cushman Doherty, Fort Lewis, Wash., to December 6th of that year; John Harold Turner, March Field, Calif., to June 15th, and Richard Charles Kugel, Hamilton Field, Calif., to June 16th.

V-7178, A.C.

THE CONTROL TOWER AT MITCHEL FIELD

The News Letter Correspondent from Mitchel Field, L.I., New York, has submitted several photographs showing the location and construction of the Airdrome Control Tower now in operation at the 2nd Air Base, at that field. It is regretted that the press of other work now being performed by photographic personnel in the Chief's Office will not permit reproductions of these photographs to be made in time for inclusion in this issue of the News Letter.

The necessity for an adequate control tower, capable of regulating air traffic arriving at or departing from this Base was early recognized. Accordingly, the dispatching of local air traffic was undertaken in a modest manner through the medium of a radio installation in the office of the Base Operations Officer. While this arrangement proved its worth, it was at once apparent that a more efficient set-up was quite necessary effectively to carry on this extremely important activity. Thus, from a humble beginning, a control tower worthy of the name now graces the roof of Base Headquarters Building.

The Tower was placed in operation November 10, 1936, with operating personnel maintaining continuous 24-hour watch with radio receivers tuned to the following frequencies - 3105 kc's, 6500 kc's, 6625 kc's (day) - 3295 kc's (night) and transmitters operated by remote control on 278 kc's for airdrome control and 396 kc's for the dissemination of weather data.

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AERIAL GUNNERY PRACTICE AT CAMP SKEEL

The 27th Pursuit Squadron, stationed at Selfridge Field, Mt. Clemens, Mich., recently spent three weeks at Camp Skeel, Oscoda, Mich., where it indulged in gunnery practice. This practice consisted in firing on ground targets and on aerial tow targets above 10,000 feet.

This was the first opportunity the 1st Pursuit Group has had to observe the firing qualities of the new PB-2A airplanes, and from a mechanical standpoint they performed excellently. The high altitude gunnery was very successful. No flexible guns were available on the planes for practice by the gunners, but they were trained on the ground by firing several thousand rounds. The personnel found ample recreation in athletics and fishing, and all personnel of the Squadron agree that the work at Camp Skeel had been both interesting and instructive.

The 94th Pursuit Squadron, during the month of October, also spent three weeks at Camp Skeel participating in gunnery practice.

THE PHILIPPINE ARMY AIR CORPS

About 33-1/3 percent of the Philippine Army Air Corps was recently rendered inactive when a student pilot cracked up one of their three planes, a Stearman Trainer. The pilot, however, was only slightly injured, and the plane was not damaged beyond repair.

The task of organizing and training the Philippine Army Air Corps is in the hands of 1st Lieuts. William L. Lee and Hugh A. Parker, U.S. Army Air Corps, who are, in addition to their other duties, assigned to duty in the office of General Douglas MacArthur, Military Advisor to the Commonwealth of the Philippines. Lieut. Lee is Acting Chief of the Philippine Army Air Corps, with Lieut. Parker his assistant. They have about 85 student pilots.

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PURCHASE OF ADDITIONAL TRAINING PLANES

The Secretary of War, Hon. Harry H. Woodring, recently announced the award to the Stearman Aircraft Company, Wichita, Kansas, of a contract for 28 Primary Training airplanes and a reasonable amount of spare parts. This purchase is to be made by an increase in a contract already let to this company at a total additional cost of $146,720.25. This additional procurement of training airplanes is made to fill an urgent requirement for this type of airplane at the Air Corps Training Center, and purchase at this time by exercise of option permits of a saving of approximately $620 per airplane on total contract.

The desired performance characteristics of a primary training airplane for the Army Air Corps are: comparatively low landing speed, high speed of 125 miles per hour, operating speed of 105 miles per hour, with an endurance of 4 hours at such operating speed, and climb to 18,000 feet in 18 minutes with full load.

The type purchased is the PT-13A, which is a two-place (tandem arrangement) biplane, powered with a 7-cylinder air-cooled Lycoming engine of 125 horsepower. This airplane has been judged by Air Corps personnel as exceptionally well suited to the fundamental training in flying given at the Air Corps Training Center.

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NEW TRANSPORT PLANE FOR SELFRIDGE FIELD

Selfridge Field received a new C-33 Transport on November 23rd. It was flown to that field from the Douglas Plant by the Post Commander, Colonel H.B. Clagett, and Captain Harlan T. McCormick.

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Major General Frank M. Andrews, Chief of the GHQ Air Force, visited Selfridge Field November 23rd, leaving on the 25th.

V-7168, A.C.

LONG-DISTANCE FLIGHTS TO MANILA
By the News Letter Correspondent

As Manila was the terminal of several flights of interest during September and October, a brief account of each of them is submitted.

A "SHORT-Singapore" flying boat of Squadron 205, British Royal Air Force, Singapore, Malay Peninsula, powered by four Rolls-Royce engines mounted in tandem pairs, landed on Manila Bay at 1:40 p.m., September 25th, after a flight from Singapore via Hongkong. The flight from Hongkong to Manila was made that day, the start being made at 6:00 a.m.

The boat carried a crew of three officers and six enlisted men. The following officers were aboard: Air Commodore Sidney W. Smith (in command), Group Captain A.H. Peck and Squadron Leader G.S. Riccard. The return flight was made via Kudat, Borneo, over the Southern Philippine Islands and British North Borneo, taking off from Manila Bay on the morning of September 29th. During their stay in Manila, the officers were quartered at the Army and Navy Club, and were entertained at several functions by the British Consul, officials of the City of Manila, the Commonwealth of the Philippines and the officers of the Air Corps. The enlisted men were quartered at the Army and Navy Y.M.C.A. On the evening of September 28th, they were entertained by the Air Corps noncommissioned officers at a dinner at the Great Eastern Hotel.

A Douglas DC-2 airplane of the Royal Netherland Indies Airways (KNILM) landed at Nichols Field on the afternoon of October 10th, after a flight from Batavia, Java, via Balikpapan, Borneo and Zamboanga, P.I., carrying Mr. H.R. Ekins of the Associated Press as passenger. Mr. Ekins was at the time participating in a race around the world via commercial airlines with two rival newspaper representatives - Miss Dorothy Kilgallen and Mr. Leo Kiernan. Mr. Ekins, after several days' delay at Manila, was able to make connections with the Hawaiian Clipper, thereby completing his around-the-world flight far in advance of his competitors. In addition to Mr. Ekins, the members of the crew and other passengers were Mr. Van Breman, in command; Mr. Waltman, 2nd Pilot; Mr. Proost, Mechanic; Mr. Souman, Assistant Mechanic; Mr. Van Ende, Radio Operator, and Mr. N. Nieuwenhuis, General Manager of the line, and Mr. De Bree, Assistant Manager.

The flight was in the nature of a survey preliminary to the establishment of a line between Manila and the Netherland East Indies. During their stay in Manila, several flights were made over that city and vicinity, carrying Philippine Government officials and others. The return flight was made via the same route, carrying several local citizens as passengers from Manila to Zamboanga, P.I.

The Pan American Airways during the month of October made several preview flights, carrying newspaper representatives, Pan American Airways officials and representatives of American business and society. Three Clippers were in the air on October 18th, two headed toward Manila and the other returning to Alameda, all of them carrying passengers on preliminary flights preparatory to the establishment of regular commercial passenger service, October 21st.

The China Clipper, with eight newspaper men aboard, was enroute from Guam to Manila. The Hawaiian Clipper, carrying Mr. H.R. Ekins, was enroute from Midway to Honolulu, and the Philippine Clipper was enroute from Honolulu to Midway. The Philippine Clipper on the last of P.A.A.'s preview flights arrived at Manila on October 20th, with a distinguished group of 15 passengers, including Mr. and Mrs. Juan Trippe, Mr. and Mrs. Cornelius Vanderbilt Whitney, C.G. Grosvenor, E.O. McDonnel, Robert Lord, Senator and Mrs. McAdoo, Amos G. Carter, Roy W. Howard, Paul Patterson, E.R. Swasey, Thomas Backe and James G. Stahlman, and took off again at 6:00 a.m., October 23rd, with J.H. Tilton in command on the first flight to Macao, China, the far east terminus of the P.A.A., carrying the same passengers who were aboard on its arrival in Manila and, in addition, the following P.A.A. officials: H.M. Bixby, John Morris, Karl F. Lueder, Brooks Tatum and O.R. Butler, and a crew of seven, or a total of 27 passengers.

The Clipper was scheduled to return to Manila, via Hongkong, on October 24th. Captain John P. Van Zandt, Air Reserve, and formerly a 1st Lieutenant in the Air Corps, Regular Army, is at present acting as local manager of the Pan American Airways in Manila, and is attached to the 4th Composite Group at Nichols Field for inactive duty flying. Captain Van Zandt resigned from the Air Corps in January, 1926.

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Colonel Adna R. Chaffee, General Staff Corps; Lieut. Colonel Shepler W. Fitz Gerald, Air Corps (General Staff); Lieut. Colonel William O. Ryan, Air Corps, and Major Wilton B. Persons, Office of the Assistant Secretary of War, accompanied the Sub-Committee of the House Military Affairs Committee on its inspection of Scott Field, Ill., on November 25th.

On Nov. 27th, 1st Lieut. Filberto Mendivil Gomez, of the 1st Aero Regiment, Mexican Army, visited Scott Field by plane.

AND WAS THE MAJOR GLAD TO GET HOME!

The Correspondent of the 37th Attack Squadron, Langley Field, Va., spins this yarn, characterizing it as a very amusing incident and one that should be told.

He goes on to say that several months ago, during the Second Army Maneuvers, the 37th had four planes participating therein to lay a smoke screen at Fort Knox. Among the planes not taken on maneuvers was number 84, an A-8A, the only one of its kind in existence. The difference between the A-8A and the regular A-8 was a geared Conqueror motor that sounded like a coffee grinder and the plane consequently took about twice as much field on take-offs. The 37th had just received a new Cadet from Kelly Field and, being ordered on his orientation flights during this time, of course drew the old coffee grinder for his flights. To qualify for further cross-country trips, the new pilot must include in the orientation flights Fort Bragg, Richmond, Bolling Field, Middletown, Edgewood Arsenal and Mitchel Field.

The day this young man was sent to Mitchel Field, someone from GHQ called the 8th Pursuit Group and asked if they had a plane available to go to Ithaca, N.Y., to ferry back a certain Major from GHQ. Noticing that the 37th Squadron had a plane enroute to Mitchel Field with an empty rear seat, the Pursuit Group Operations called the 37th and asked if there were any objections to sending the plane to Ithaca to pick up a passenger and, of course, there were no objections.

The officer waiting at Ithaca is a very close friend of the C.O. of the 37th Squadron, and when the A-8 loomed in sight he felt very pleased inwardly that his good friend was coming to pick him up, not realizing that the Second Army Maneuvers had taken him away. Imagine his surprise after the plane landed to see a big red-headed youngster crawl out. This is the point where the Major made his mistake, because he should have crawled in the rear seat and said "Let's go!" Instead, he asked where the C.O. of the 37th was and why he didn't come after him.

Without stopping for a breath between words, this is the answer he received:

"The C.O. of the 37th is on maneuvers with all the good airplanes in the organization; they gave me this old coffee grinder to make my familiarization flights in because it was not good enough to go on maneuvers and I just graduated from Kelly Field."

The young man then got out the tools, tightened up the Prestone pump which was leaking quite badly, and was ready to start. The return to Langley was made without difficulty and, even though the young man made a successful landing down wind at Langley, the Major was so glad to be down that I do not believe he noticed it.

BOLLING FIELD HAS EDUCATIONAL FACILITIES

Despite occasional complaint to the contrary, an enlisted man in the Army finds leisure time on his hands, to dispose of as he may see fit. Enlisted men in the Air Corps make good use of their own time in various ways, according to their particular fancy,- in athletic sports, in music, in traveling, in extensive reading and in studying for some scholastic achievement. A like variety can be found at nearly any place where a group of men are quartered.

At Bolling Field there is a particular tendency of the men to achieve a higher educational standing. The educational facilities in the City of Washington offer opportunities that are hard to turn away, and any spare time can be put to good use by those who have a desire to better themselves. Washington schools offer classes both day and evening, primarily for the benefit of government workers, and they cover practically every field of knowledge and are of high standing. Every year an average of about fifty men from Bolling Field enroll at various schools in the city, some in day classes, but the majority in evening classes, according to their hours off duty. Of that number, a large percentage take up the study of law. Next in line come stenographic or business courses, a few in music, others in commercial art, in commercial radio, or in accounting. Some pursue a regular college course toward a degree at George Washington University or at Georgetown University, and others continue high school courses where they left off before joining the service, or review before going to a higher education.

Through these advantages, the enlisted men at Bolling Field are daily raising their educational standard, and thereby their social standard, and are better prepared to keep up with the technicalities of their work and the opportunities of modern times.

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RESERVE OFFICERS ENTER CIVIL AVIATION

Recently, Lieuts. G.C. Nye and J.F. Lumsden, Air Reserve, were relieved from active duty with the 96th Bombardment Squadron to accept positions with the American Airlines. Lieut. B.J. Pearson was also relieved from active duty to go with the Boeing Aircraft Corporation, Seattle, Washington. Although sorry to see them leave the service, the Squadron extends to these Reserve officers wishes for the greatest success in their new positions.

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Second Lieut. Claire Barton Collier, Air Reserve, of San Antonio, Texas, was ordered to active duty for a period of three years, effective December 7th, and for station at Brooks Field, Texas.

V-7178, A.C.

GOOD OLD ARMY CHOW
By the Langley Field Correspondent

DESPITE intensive recruiting by the Recruiting Officer at Langley Field, Va., in conjunction with recruiting stations throughout the 3rd Corps Area, thus leading to the enlistment of a number of suitably qualified men for the GHQ Air Force, Langley Field is still under-strength, due to the heavy concentration of discharges during the past three months. Those who may be due for discharge in the various other arms of services, and who may have been refused admission in the Air Corps because of lack of vacancies at the time of their enlistment, should apply now while recruiting is still open.

At no time has the GHQ Air Force offered such highly technical and specialized training in the various trades as at present. There are ten different and interesting trades being taught at Chanute Field, Illinois, and Fort Monmouth, New Jersey, these in addition to the courses offered at Fort Monroe, Va., and Fort Meade, Md. The courses at Chanute Field are all complete and are equivalent to the same courses offered in civilian life which extend over a period of two years.

All these schools are available to the young man in the Air Corps at Langley Field. An Air Base School will be instituted at Langley Field on January 4,1937. Despite the fact that possibly 50 or 60 men leave the Langley Field Air Base every year to attend a service school, the Commanding Officer desires to turn out three or four times that amount of trained men every year, in keeping with the GHQ Air Force policy of having every man a trained specialist. The courses to be instituted at Langley Field are to be of six months' duration, and consist of the following:

1. Meteorology Course.
2. Woodworking Course.
3. Armorers' Course.
4. Airplane Mechanic's Course.
5. Radio Mechanic's Course.
6. Welders-Sheetmetal Workers Course.
7. Ignition and Battery Course.

And now we come to the subject heading this article.

Several weeks ago, a young man applied for enlistment at Langley Field and, upon examination, he was informed that he was 13 pounds underweight for enlistment.

The boy's apparent willingness and determination convinced the Personnel Officer that here was a case that needed his personal supervision. Contacting the "Top Kick," of the 1st Air Base Squadron, he requested that this boy be allowed to quarter in his organization for a week or two, and that he be given special attention in the mess hall.

Evidently the plan worked, for it was but a fortnight later that, upon a re-examination, it was disclosed that the applicant had gained the required weight, 13 pounds, and his enlistment was accomplished.

The moral to this story is:

Eat Army chow - you can't get anything better.

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THIRD ATTACK GROUP WINS COLOMBIAN TROPHY

The Third Attack Group, commanded by Colonel Earl L. Naiden, Air Corps, stationed at Barksdale Field, Shreveport, La., won the Colombian Trophy for greater safety in flying than any other similar organization in the Army Air Corps.

This Trophy was presented with appropriate ceremony to the Group December 9th, General Andrews, Commanding General of the GHQ Air Force, flying to Barksdale Field especially for that purpose.

This Trophy was presented to the Air Corps by the Republic of Colombia, and is awarded annually to that Air Corps Group which during the preceding year has had the smallest number of accidents per flying hour.

The Colombian Trophy was presented to the United States Army Air Corps by the Republic of Colombia in order to cement more thoroughly the spirit of friendship between the two American Republics and to express the feeling of comradeship which always exists between fliers of all nations.

The Trophy was brought to this country last year at the time of the Miami Air Races by a delegation of Colombian Army pilots, headed by Major Benjamin Mendez, Colombian Air Force, who is a graduate of the United States Air Corps Training Center at San Antonio, Texas, and who has also attended various Army schools in the United States.

The rapid advances in the speed and the greater complexity of modern military aircraft require unusual care by all those connected with aviation to prevent accidents, and it is most fitting that the organization which has achieved the greatest safety should be publicly honored by the presentation of such a Trophy.

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A new Reserve unit, the 328th Observation Squadron, composed of San Antonio Air Corps Reserve officers, was recently organized, with Lieut. Colonel Jack H. Lapham in command. Major Winfield S. Hamlin, Air Corps, has been appointed as instructor of the new unit. Three new type basic training planes and three primary training planes will be assigned to the unit for the training of the Reservists at Brooks Field, Texas, once or twice a month.

V- 7178, A.C.

THE 18TH RECONNAISSANCE SQUADRON, GHQ AIR FORCE
By the Mitchel Field Correspondent

EXPEDITED by the War Department order for reorganization of Air Force Units on September 1,1936, the 18th Reconnaissance Squadron pushed aside the last retaining threads of its cocoon and spread its wings towards Mitchel Field's horizon. True, there had been other "18th Squadrons," none, however, with the Raison d'Etre of this healthy, fast developing infant predestined to be the long range magic eye for its powerful and prolific brothers, the bombers.

Turning back the pages of history, we find the first "18th" was organized at Rockwell Field in 1917. It was designated the 18th Land Training Squadron and was charged with developing into war birds those adventuresome lads who were bound and determined to fight the war with the whole sky as a battlefield. In 1919, with the war ended, the "18th" which had, meanwhile, been rechristened Squadron "B," folded its wings and was demobilized. During the unsettled period following the War, the 18th Observation Squadron was reorganized at Rockwell Field, and carried on the young but enthusiastic spirit of the Air Corps from 1921 to 1925, when it was demobilized.

Not long afterwards, the 18th Observation Squadron took root on the Atlantic side of the continent; not, however, as the 18th Observation, but as the 18th Headquarters Squadron at Bolling Field. The last vestige of these old "18th's" disappeared on March 31, 1928, when the 18th Squadron was rendered inactive and attached to the 8th Corps Area. And so, after eight years of slumber, we find the numerals "18" once more taking wing, this time with broader and rosier horizons than ever before.

Of the illustrious officers and men of these earlier "18th's," chief, perhaps, is Major General Mason M. Patrick, whose own coat of arms was used as the foundation of the insignia of these earlier organizations; a winged foot of Hermes on a shield of azure, representing speed and service.

Although backed by years of tradition, the 18th Reconnaissance Squadron, organized at Mitchel Field on September 1, 1936, has had, to all intents and purposes, a scratch start; that is to say, it has plenty of tradition behind it, yet it is unhampered by tradition. With the increase in range and effectiveness of modern Bombardment, a new and yet untried reconnaissance unit was made a practical necessity. Chief among its accomplishments must be the ability accurately to locate and report on suitable targets at great distances over land and sea. That is to say, it is the guiding hand for the Bombers which, being ill-equipped for conducting lengthy search because bomb load must have priority over gas-carrying capacity, and rely on long range reconnaissance units to provide the vital information.

Under the leadership of Captain J.P. (Trooper) Doyle, the 18th Reconnaissance Squadron has tackled with determination the work cut out for it. Provided with five B-10B airplanes in addition to the two OA-4's which have heretofore been associated with long range reconnaissance, the first obstacle, that of seeing that every airplane was equipped with instruments essential for precise navigation, was overcome within the limits imposed by present day restrictions on availability and procurement of equipment.

Realizing the importance of having proficient Dead Reckoning and Celestial Navigators as officer personnel in this Squadron, every effort has been bent in that direction. Four of the originally assigned officers to the 18th are graduate navigators and have provided the nucleus about which it is hoped to develop a squadron thoroughly capable of doing its job. Other assigned officers are being developed into practical navigators as expeditiously as possible.

Not the least of the 18th Squadron's responsibilities is the conduct of the 9th Group Navigation School, also under the leadership of Captain Doyle. The present class of eight members will graduate before the New Year and, although none of the students of the school are members of the 18th, due to the fact that the class was started before the 18th was organized on September 1, 1936, it is our goal to have every Squadron officer an accomplished navigator.

About a month after reorganization, the 18th was selected to participate in the Joint Army-Navy Exercises at Langley Field, October 3rd to 17th, 1936. Due to the shorage of trained navigators, the students of the Group School were drafted into service. The success of the 18th's part in those exercises is a matter of record and need not be discussed further here.

Equally successful was the Squadron's participation in similar maneuvers at Maxwell Field early in November. Notable among its accomplishments during this exercise was the night flight from Maxwell Field to Mitchel Field, sans stop; notable not so much because it was accomplished but because it was accomplished when and in the manner in which it was planned.

Unhindered by its comparative youth, the 18th was a harbinger, during these two exercises, of the greater and nobler

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THE 21ST RECONNAISSANCE SQUADRON, GHQ AIR FORCE.
By the Langley Field Correspondent

It is understood that the reconnaissance Squadron will be called upon for the following types of missions:

(a) Long Range day and night reconnaissance;

(b) General Intelligence for GHQ Air Force;

(c) Location of Targets for Bombardment Aviation;

(d) Aerial Photography.

To carry out the above missions, it is necessary to have a plane of considerably more range than the Bombardment served in order to permit the patrol search and surveillance at the extreme radius of action of the Bombers; it should be large enough to permit relief for various members of the combat crew; it should be comfortable to prevent excess fatigue on extended missions.

Due to the close association between Bombardment and Reconnaissance Aviation, the 21st Reconnaissance Squadron is an integral part of the 2nd Bombardment Group.

The 21st Reconnaissance Squadron, GHQ Air Force, was organized at Langley Field, Va., on Sept. 1, 1936, per letter of the War Department, dated August 12, 1936.

On the date of organization, the Squadron consisted of two officers and 19 enlisted men, with Major H.H. Holland, Air Corps, in command. One additional officer was attached as Assistant Instructor at the Avigation School and four officers were attached as students for the avigation course. Since the organization, the Squadron has been assigned three additional officers and has received twelve enlisted men. Two enlisted men were lost by discharge, due to expiration of term of service. The initial increment of men was assigned from the 59th Service Squadron, which was disbanded. The increases have resulted from transfers and the enlistment of three men. The Second Photo Section is attached to this organization.

Due to a shortage of personnel and equipment, the chief functions to date have been the Avigation School and Aerial Photographic missions.

Three B-10's were attached for photographic missions during the recent Army-Navy Joint Exercises. Two B-10's have been assigned the Squadron and one more is expected within a short time. The Squadron is scheduled to receive five Douglas B-10's next summer.

A Squadron Insignia, which embodies the characteristics of Reconnaissance Aviation, has been submitted for approval.

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BOLLING FIELD COMMUNICATIONS

Although radio communication between airplanes and ground is becoming more and more commonplace, there is always room for improvement in the construction and installation of sets, both in airplanes and in ground control stations. At Bolling Field the maintenance crew of the Communications Department is daily striving to improve the ground control station, and their success can be seen in the increasing efficiency of their department and in the compact arrangement of their equipment. The remote control and operating room is located in the same building as the operations office, and the transmitters are in another building about a half a mile away. Through the ingenuity of of the maintenance crew, the transmitters, the operations office, and the control room are all connected by a master control board in the remote control room. The four transmitters, types 14-A, 132, 187 and 136, in the transmitter building are started or stopped by push buttons on the control board, and the set or sets operating are shown by red indicator lights on the panel. The desired frequency is dialed by a device similar to that on a dial telephone. Should the indicator light fail to signal within ten seconds after the starting button is pushed, all the power can be shut off by a main switch to prevent fire starting in the transmitter building, until the trouble is located. The board also has plugs and connections similar to a switchboard, by which the sets can be operated from the control tower outside, or by the operations officer himself through the switch box at his desk. The panel has a volume control device by which the output to the transmitters can be increased or decreased. The board is built into the wall, with only the indicators, switches and plugs showing on a black bakelite panel. Two auxiliary boards on other walls are connected to the master board and facilitate the working of three or more operators. The control room has seven receiving sets, a station altimeter, a telephone, a direct call system between operations and the transmitter building, and a large clock whose

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Biographies

COLONEL FRED H. COLEMAN, AIR CORPS

Colonel Fred H. Coleman, Air Corps, now on duty as Commanding Officer of the Panama Air Depot, Canal Zone, was born in Arkansas December 23, 1881. He attended Ouachita College, Arcadelphia, Ark., for two years. During the Spanish-American War, he served as a Private in Company M, 1st Regiment, Arkansas Volunteer Infantry, from May 20, 1898, to October 25, 1898. Receiving appointment as Cadet at the United States Military Academy in June, 1903, he graduated therefrom four years later, and was commissioned a 2nd Lieutenant of Cavalry, June 14, 1907. He was detailed in the Ordnance Department July 1, 1909, for a period of four years, during which time he held the rank of 1st Lieutenant. He was promoted to 1st Lieutenant, October 28, 1913, was again detailed in the Ordnance Department, June 20, 1915, and resigned from the military service on August 30, 1915.

In civil life, Colonel Coleman was connected with industrial concerns until February 20, 1920, when he was appointed Factory Superintendent at the Air Service Engineering Division, McCook Field, Dayton, Ohio, where he had 172 employees under his supervision and was in direct charge of all experimental manufacture of airplanes, engines, aircraft equipment and accessories built at that station. He resigned from this Civil Service position December 21, 1920, to accept appointment as Major, Air Service, U.S. Army.

Ordered to the Primary Flying School, Carlstrom Field, Arcadia, Fla., for flying training, he reported at that station March 31, 1921, and, upon completing the course of instruction, reported at Ellington Field, Houston, Texas, for advanced flying training in August, 1921. While at Ellington Field, Colonel Coleman was in charge of a unit school for officers and instructor in military law. Upon the completion of his advanced training, he was rated an Airplane Pilot (Pursuit) December 7, 1921, and assigned to duty with the 1st Pursuit Group.

Transferred to McCook Field, Dayton, Ohio, January 19, 1922, he was on duty as Assistant to the Commanding Officer at that field and Secretary of the Equipment Board until February, 1923, when he was transferred to Langley Field, Va., for duty as Air Service Supply Officer.

In September, 1924, Colonel Coleman was transferred to Scott Field, Belleville, Ill., for duty as student at the Balloon and Airship School, and upon completion of the course of instruction was rated Airship Pilot and Balloon Observer.

Returning to Langley Field in September, 1925, for duty as student at the Air Service Tactical School, he graduated therefrom in June, 1926; continued for another year of duty as a student at the Command and General Staff, Fort Leavenworth, Kansas, and in June, 1927, upon his graduation, was assigned to duty at Aberdeen Proving Ground, Md., where he commanded the 49th Bombardment Squadron to January 17, 1928, and was Air Officer at that station until July 10, 1930.

While assigned to duty at Aberdeen, Colonel Coleman was on detached service at Edgewood Arsenal, Md., February 10 to April 20, 1929, pursuing a course of instruction at the Chemical Warfare School. From March 24 to May 4, 1930, he was on temporary duty at Mather Field, Calif., as Commanding Officer of the Provisional Air Corps Transport Squadron during the course of the Air Force Command and Staff Exercises.

Colonel Coleman once more returned to Dayton, Ohio, in July, 1930, Assigned to duty as Chief of the Field Service Section, Wright Field, in addition thereto he served temporarily as commanding officer of the field and as acting chief of the Administration Section. From July 21, 1932, to March 13, 1933, he was Chief of the Equipment Branch of the Materiel Division. He was then transferred to Patterson Field, Ohio, and assumed command of the Fairfield Air Depot. He remained on this duty until his recent assignment to duty in the Panama Canal Department.

One of a small number of Air Corps officers holding four flying ratings, Colonel Coleman has passed the 3,000-hour mark in total flying time.

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LIEUT. COLONEL EUGENE A. LOHMAN, A.C.

Lieut. Colonel Lohman dates his active association with aviation as a flyer from August 24, 1920, when he reported for duty as a student at the Air Service Pilot School at March Field, Riverside, Calif. At that time he was on duty as Professor of Military Science and Tactics at the New Mexico Military Institute, Roswell, New Mexico, from which school he had graduated in 1905. From March 28, 1906, to December 11, 1911, he was connected with the New Mexico National Guard, serving as a second lieutenant of Infantry to June 13, 1910, and as Captain and Adjutant to December 11, 1911.

Col. Lohman accepted appointment as a second lieutenant of Cavalry, December 30, 1911. He was promoted to 1st Lieutenant, July 1, 1916; to Captain, May 15, 1917; to Major, July 1, 1920, and to Lieutenant-Colonel, August 1, 1935.

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Reporting at March Field, October 30, 1920, Colonel Lohman completed his training in April of the following year, and he was then ordered to Post Field, Fort Sill, Okla., for advanced flying training at the Air Service Observation School. Following the completion of his advanced training in December, 1921, he remained at Post Field until June 30, 1922, as Officer in Charge of Training at the Air Service Observation School. He performed the additional function of Assistant Commandant of this School from April 4, 1922.

With the transfer of the Observation School to Kelly Field, Col. Lohman changed his station to that field, and he was Director of Training of the Advanced Flying School, in addition to performing various other duties, until October 11, 1923, when he was transferred to Phillips Field, Aberdeen Proving Ground, Md., where he served as commanding officer of Air Service activities until June 18, 1926. He was then assigned to the command of the 49th Bombardment Squadron which at that time was transferred from Phillips Field to Langley Field, Va. In September, 1926, he was detailed as a student at the Air Corps Tactical School at Langley Field and, following his graduation from this school in June, 1927, and from the Command and General Staff School, Fort Leavenworth, Kansas, in June of the following year, he was assigned to the command of the 12th Observation Squadron and the Second Division Aviation at Dodd Field, Fort Sam Houston, Texas.

In July, 1931, Col. Lohman was transferred to the Panama Canal Zone, and he served at France Field as Post Operations Officer and Information Officer, and later as Executive Officer at this field until April 25, 1932, assuming command of the 44th Observation Squadron and Albrook Field, Canal Zone, until December, 1932, and of the 16th Pursuit Group at that station until May, 1933, when he was transferred to March Field, Riverside, Calif. For the next three years, Col. Lohman was stationed at March Field and served in the capacity of Post Executive Officer and later as Station Complement Commander. In October, 1936, he was transferred to Kelly Field for duty as Assistant Commandant of the Advanced Flying School.

Col. Lohman is a native of New Mexico, and was born at Las Cruces on March 26, 1886.

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THEY LOVE THE NEW AIRPLANES

The Scribe for the 37th Attack Squadron, Langley Field, Va., states that Lieuts. Day, Eubanks and Pender left recently in the "Big Duck" for March Field to bring back some A-17's and that the entire organization is holding their breath and everything else, hoping that they will be assigned to the 37th.

BLUE AND GOLD CLUB AT SCOTT FIELD

The enlisted men of Scott Field, Belleville, Ill., have organized a chapter of the Blue and Gold Club, patterning it after the principles of the Luke Field Club, the first of its kind. First Lieut. James C. Bean (Chaplain) is the Advisory Officer. It was through his efforts that the Club was conceived and organized at this post.

At present, the membership is 45, and meetings are held every Monday evening. Special group meetings are held during the week. The organization's special hobby groups are Rifle and Pistol Club, Radio Club, Photo Club, Music Club, and Chanute Exam Prep Group. The latter group is studying the mathematics and mechanical principles necessary to the prospective students. Other groups will spring up when a sufficient number of the members become interested in special subjects.

Members of the Club are from the Base Headquarters and 7th Air Base Squadron, 9th Airship Squadron, 15th Observation Squadron, 21st Photo Section, and the various detachments. A special meeting room was obtained and then painted and decorated. Furniture, a ping-pong table and lamps were moved in, and a dozen popular magazines were subscribed to in order to complete the setting. This room is open nightly as a recreation, reading and meeting room.

Colonel Frank M. Kennedy, Commanding Officer of Scott Field, has given the Mechanical Club permission to draw available tools and equipment.

Although the membership of the Club continues to grow slowly, the Club has been well supported by the post personnel at two dances given recently. Considering the fact that the Club was organized in October, only two months ago, it may be said that it is growing by leaps and bounds.

The huge success of this group should be taken as a hopeful sign for the popularity of similar clubs at other fields. The Scott Field secretary will be happy to correspond with any interested parties.

"It is hoped," says the Scott Field Correspondent, "to make the Blue and Gold Club a service-wide organization."

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The 18th Reconnaissance Squadron

(Continued from Page 8).

things to be expected of long range reconnaissance units. Only downright neglect of equipment and personnel development of this most important adjunct of the General Headquarters Air Force can stem the surge of this fast growing, up-and-at-'em outfit, reorganized, yes; redesignated, yes; but, most important of all, living, breathing and chafing at the bit, ready to "go."

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Welcoming this contribution from Mitchel Field, we hope for more of the same kind.

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THE 97TH OBSERVATION SQUADRON (C & A)

The News Letter Correspondent from Mitchel Field, N.Y., states that the insignia of the 97th Observation Squadron, a very beautiful and intricate piece of work, designed by Lieut. Waterman, has been adopted officially. The insignia at a distance gives the impression of a "Death's Head," but a closer inspection reveals a camera, binoculars and earphones. The design symbolizes the basic purpose of Observation Aviation, which is to observe, record and report, with deadly effect.

During the month of November, the 97th participated in many aerial navigation flights and tactical missions, stressing front and rear gunnery and instrument flying. Nine new arrivals brought the enlisted strength to 71. One new officer, Lieut. Ellsworth, reported from the Advanced Flying School.

There was another 97th Aero Squadron (Service) which served in the World War. Organized at Kelly Field, Texas, on August 20, 1917, in accordance with the provisions of Special Orders No. 88, Headquarters, Kelly Field, Texas, this Squadron sailed for France on the S.S. ADRIATIC, October 20, 1917. It had no combat service while abroad, returning to the United States on the S.S. MANCHURIA on January 22, 1919. Upon return to the United States, the unit was demobilized at Garden City, Long Island, New York, on February 3, 1919. For its service in France from November 12, 1917, to November 11, 1918, the 97th Aero Squadron earned a silver band for its guidon, engraved "World War."

In order to perpetuate the history and traditions of the 97th Observation Squadron, which served as a unit of the American Expeditionary Forces in the World War, it was reconstituted and consolidated with the 97th Observation Squadron which was constituted March 1, 1935, with headquarters at Mitchel Field, Long Island, New York.

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Bolling Field Communications

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face is ingeniously marked to indicate commercial airline schedules. With the equipment conveniently and efficiently arranged, and operating on a 24-hour schedule, the Communications Department is keeping abreast of the times.

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War Department orders announce the temporary promotion of Captain Byron E. Gates, Air Corps, to the rank of Major, effective November 29, 1936.

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JUST ANOTHER CATERPILLAR

Flying over North Carolina in a B-10B Bombardment plane on November 17th, Major Samuel M. Connell, commanding officer of the 99th Bombardment Squadron, Mitchel Field, New York, perceiving that the right engine was afire, directed his mechanic, Private Arthur Zenke, to "bail out."

The News Letter Correspondent states that Major Connell landed shortly thereafter in a blaze of glory at Warrenton, N.C., and that, fortunately, no damage resulted.

Private Zenke, in his official report covering his parachute jump, states that he was in the rear cockpit and that he placed his right foot on the seat and left foot on left cockpit rim, jumping headfirst.

"I remained in headfirst position for about five seconds, eyes closed," he said. "I exerted a strong pull on the ripcord, and the parachute opened immediately and I was snapped into normal position. Immediately after the chute opened, I seemed to be standing still in midair. After about one minute I could notice my descent and I began to sway. I was apprehensive of the parachute buckling. When I approached the ground, I appeared to be headed toward a large barn, but when within about 200 feet from this barn a gust of wind blew me into a field. I landed feet first and rolled over backward four or five times. I was nervous for some time after I landed."

Frequent calls are made upon the Information Division, Office of the Chief of the Air Corps, for an up-to-date roster of the Caterpillar Club.

It is not practicable continually to publish revisions of the membership list of this mythical organization, but it is proposed to publish this roster in the News Letter in installments, so that those interested in this subject may be enabled to keep this roster in loose leaf form. Accordingly, the first two pages of this roster are published elsewhere in this issue of the News Letter, and this practice will be continued in succeeding issues until the roster is up-to-date.

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The following noncommissioned officers were recently appointed Master and Technical Sergeants, Air Corps:

To Master Sergeant: Technical Sergeant Ernest M. King, Bolling Field; First Sergeant Roy C. Dunlap, Chanute Field.

To Technical Sergeant: Staff Sergeant Besola Cobb, Langley Field, Va.

Master Sergeant Andrew May, March Field, Calif., retired November 30,1936.

GOLD SEEKERS AT FRANCE FIELD

The following, much abbreviated diary, kept by Corporal W.T.Bennett of the 25th Bombardment Squadron at France Field, is an account of a journey performed by himself and Tech.Sgt. Paul B. Jackson of the Panama Air Depot into the land which has meant gold ever since the time of Christopher Columbus.

It is evidence of the difficulties of travel in the tropical jungles even with the assistance of the natives who may well be descendents of the same brown men who guided Balboa across the same hazards. It points plainly to the difficulty of spotting any movement from the air, and although good evidence that life is supportable, and that gold is available, does not minimize the fact that "Alaska must have been easier".

Monday,Aug.17,1936. After a night spent in final preparations we left Colon at 4:30 in the morning on the "Elena Maria". We were delayed by motor trouble which made our trip of about 12 hours duration, when it should have been 3 or 4.

At the village we had chosen as a starting place for our adventure we unloaded our equipment and found our guide, one Julio Ortiz, with whom previous arrangements had been made. We proceeded to his home, a native house of bamboo poles and thatched roof, about the size of a large single garage, although it contained three rooms.

Leaving our luggage at the home of Julio we made an inspection tour of the ancient site of the village, unearthing bits of old Spanish or Indian pottery. We have contracted for privileges on the whole site and if we have time we intend to go back for further exploration. From the owner of the finca there, we bought a small amount of a kind of slag that seemed to have a bit of gold in it. This purchase was made more for the purpose of obtaining good will than for anything else.

About six o'clock we returned to Julio's and enjoyed a delicious supper of rice cooked with coconut oil. After supper we took two Atabrine tablets and went to bed in an adjacent empty house.

Tuesday, Aug. 18. We rose early and went to Julio's house for breakfast. A heavy rain set in and as it kept up all day none of our native porters appeared to carry our luggage. Took 15 grains of quinine and retired early.

Wednesday, Aug. 19. An American breakfast this morning. Redistributed our luggage so the natives would be slowed down enough for us to keep up and started about 7:30 A.M. We were carrying a load of about 50 pounds each in specially constructed packs with wide padded straps, and the five natives carried the rest.

After the first hour I threw my leggins away. After the second hour of climbing river banks and wading streams, we peeled off our shirts. We followed the river, sweating, slipping, sliding, swearing and all the time wondering if we could last.

When we finally stopped for a 30 minute rest the seven of us ate a two-pound can of raisins and a few pieces of bread.

After this lunch we had to travel entirely in the stream, going against the current in water sometimes hip deep. When we reached the headwaters about sundown the hellist contraptions on our backs seemed to weigh nearer 300 lbs. than the 50 they had been. Although stiff and sore we had to establish a camp. We set up the tents while the natives gathered wood, built a fire and cooked some green bananas and rice. We made about 12½ miles today of very hard traveling. Took two Atabrine tablets immediately.

Thursday, August 20. Broke camp before 8:00 AM and began the climb that took us across the Continental Divide. This too was constant spilling and sliding. We found remnants of the old Spanish Trial two or three times.

We started down into the valley of the Boqueron at about 11:00 AM. We had heard a plane earlier evidently trying to contact us, but since leaving camp we had seen only a few glimpses of even the sun. Even the rivers were so overgrown that the sky was obscured. The jungle was thick and steaming, with great vines and enormous trees of all kinds. The trees met overhead along the rivers.

River travel was the easiest even though the water was sometimes over waist deep. There was a small fish, probably related to the Pirana that kept nibbling at any exposed skin. My feet began to trouble me greatly because of so much wading over stones.

When we stopped for the day, we fished, first attracting the attention of the blood-thirsty nibblers by throwing a few stones into the muddy water, and caught a sizeable mess, the largest being about 3½ lbs. With the fish and rice we had a good supper, and we made camp on a sand bar. The rain continued and the river rose but not enough to force us to the mountain.

Friday, August 21. Broke camp about 8:00 AM and went down stream. All the time the river became deeper and the

the boulders larger. Finally we were forced to leave the Boqueron for a smaller stream. About a mile up stream we found much black sand and plenty traces of gold in rocks.

Stiff and sore as we were, we climbed the divide between this and the headwaters of another stream and started down its course. About 2:30 PM we heard a plane, and hurrying down stream to a small clearing we fired a smoke bomb. The smoke did not penetrate the jungle however, just hung in the trees. Further downstream we found some old gold workings, probably Colombian. There was a tree house built in the top of the trees about 25 feet from the ground.

We attempted a camp site further down in a clearing which we hoped would be large enough for aerial deliveries. It was the only clearing we had found. Too tired to prepare beds we slept on the ground again, after taking our fever medicine.

Saturday, Aug. 22. Went early this A.M. to arrange the agreed signal to aircraft in some visible spot. Found a large boulder strewn bar and placed as large a circle as I could. When the plane located this signal the arrow I had placed indicating the direction of camp was mistaken for a figure one, which was to have been the "chow" signal. A message was dropped but air currents landed it away from the bar and it could not be located.

About 1:30 P.M. the plane came back, located our camp site after considerable circling and after a few passes, released a package of food via chute. Although it landed in a tree, we soon had it and everything was intact. The natives went wild with excitement.

During the morning we had found considerable gold and believe hydraulic operations here would net a small fortune.

After a meal of pancakes, fish and quinine, we went to bed.

Sunday, Aug. 23. Fixed bunks today so that we wouldn't have to sleep on the ground. A good thing too, as about midnight we had a hard rain and our tent leaked badly. The river rose about one foot, but it is hard to maintain such a head of water in the mountains, and it soon went down.

Sent three natives back home today and rearranged camp. Shot a Nikki and two turkeys. Julio cooked the young turkey with a pound of rice and it was delicious. These natives can do a lot with any kind of game, rice, oil and an onion. The old man took the Nikki and the other turkey, quartered them and cooked, dried and smoked them all at once over the fire.

Monday, Aug. 24. Today we found a large gravel bed with lots of gold in it. A P-12 flew over and must have seen our "rice" sign. We need rice. Had supper of dried Nikki and pancakes.

Tuesday, Aug. 25. Broke camp today and moved on. It was hard going and we went over nine mountains (hills). Sgt. Jackson is having tooth trouble and is going to arrange to go down to Pequini tomorrow and go back to France Field.

Wednesday, Aug. 26. After Sgt. Jackson got under way we started for another river we wanted to explore. A deer trail helped us some, but this gave out soon. A little climbing over and around some steep cliffs and we had to take to hip deep water. The rapids we encountered were very bad. Found a little creek that is rotten with gold. If we can work this with hydraulic methods we can do well.

Thursday, Aug. 27. Going on today into unexplored country. Found a small park that will bear a lot of exploring. Two small deer stood watching in wonder at about 20 feet. The vegetation is different here too.

Julio has a toothache too. Has had it for about a day without complaining. A weak iodine solution and four aspirins seemed to do his gums and rotten tooth some good. He says he is O.K. now. He is learning a little English and is quite proud.

Friday, Aug. 28. Went panning today. Good results, found nine colors in one pan. The old man got another Nikki and we went to camp for dinner. A hard rain kept us in camp all afternoon. Lightning struck somewhere near us.

Saturday, Aug. 29. After breakfast there was little chow left and no sugar. If we don't get some sugar by plane today, am afraid some of the natives will leave. Panning today resulted in many colors and one small nugget.

The plane arrived about 1:00 P.M. and tried to drop to us. Saw a message leave the plane which Julio retrieved. The supplies must be hanging somewhere in a tree. If they are not found we will have to leave.

No trace of the food. For supper we had cornmeal cakes and one-half of a small Nikki. If the B-10 is the only plane available for these deliveries we'll have to move, as they cannot get down close enough to us.

Sunday, Aug. 30. Julio and the old man looked for the chow again in a pouring rain, but couldn't find it. We ate a little dried Nikki.

We packed and went on to where we hoped to get a boat and get out the same way Sgt. Jackson went. Sgt. Jackson was back at France Field, and about noon to-

day he found us and after several passes in the B-10, dropped a bundle of chow, and some money to be used in hiring a boat. The rice, flour, beans and cigarettes were all in a mess in the bottom of the bundle, but we sieved out the flour and picked out the beans. Can't get a boat for a few days so the chow was mighty welcome. Had the first good meal in days.

Monday, Aug. 31. While waiting for the boat we did some more panning, getting many colors and small nuggets. As far as I followed this stream there was gold, and I didn't reach anywhere near the head of the stream. More Atabrine and again early to bed.

Tuesday, Sept. 1. Contracted for a boat after much persuasion and promised to pay $4.00 for passage down to Madden Dam. Panned 15 pans today and got gold. The prize pan had 19 colors. More quinine and to bed.

Wednesday, Sept. 2. Today we started down the river, leaving these streams that can yield so much gold, headed for Madden Dam and civilization.

There were rapids but we didn't have to get out as the water is much deeper now than in the dry season. It was a beautiful trip but there was so much rain that all I could do was look out from under my hat and occasionally shoot at something.

We made the dam at 2:45 P.M. and caught a bus to Panama, then the train to Colon. I seemed to be the subject of a lot of whispering because of my jungle clothes, growth of whiskers and my pack, and I suppose being nearly barefooted, had something to do with it, but it was the end of the adventure and I was happy.

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AWARD OF THE DISTINGUISHED FLYING CROSS

Announcement was recently made by the War Department of the award of the Distinguished Flying Cross to three Air Corps officers and two Air Corps enlisted men.

First on the list is Brigadier General Henry H. Arnold, Assistant Chief of the Air Corps, to whom the D.F.C. was awarded in recognition of his participation in the Alaskan Flight of 1934. The citation accompanying this award reads as follows:

"Henry H. Arnold, brigadier general, then lieutenant colonel, Air Corps, United States Army. For extraordinary achievement while participating in an aerial flight as pilot and commanding officer of a Bombardment Squadron of ten airplanes, from Washington, D.C., to Fairbanks, Alaska, and return, from July 19, 1934, to August 20, 1934. By his untiring energy, fearless leadership and extraordinary professional skill, Lieutenant Colonel Arnold organized, directed and completed over 18000 miles of exceptionally dangerous flying, including a non-stop flight from Juneau, Alaska, to Seattle, Washington, a distance of 950 miles over water, under extremely adverse weather conditions, without the loss of personnel and equipment, to successfully demonstrate the mobility of the Air Force and to establish new records for the Army Air Corps in aerial photography and long distance mass formation flying."

The four other recipients of the D.F.C. are Major (Captain) Barney M. Giles, 20th Bombardment Squadron, Air Corps, U.S. Army; Second Lieutenant James H. Patrick, Jr., Air Corps Reserve, U.S. Army, and Staff Sergeant Donald E. Hamilton and Corporal Frank B. Connor, both of the 96th Bombardment Squadron, General Headquarters Air Force, U.S. Army.

These four members of the Air Corps participated in a mission of mercy which was instrumental in saving the lives of seven men.

The citation accompanying the award of the D.F.C. in this instance is as follows:

"For extraordinary achievement while participating in an aerial flight from Concord, New Hampshire, to East Brewster, Massachusetts, and return, on the night of February 9, 1936. Having been notified that seven Civilian Conservation Corps enrollees were stranded on an ice flow in Cape Cod Bay, Major Giles, accompanied by Lieutenant Patrick, Staff Sergeant Hamilton and Corporal Connor, took off in an airplane during the hours of darkness, under dangerous flying conditions due to weather, and successfully located the men, dropped a message to them and reported their location, thereby being chiefly responsible for saving their lives."

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WARRANT OFFICER KNIGHT GOES TO WRIGHT

Warrant Officer Herbert G. Knight, who recently planned to retire after 30 years of service, has decided to remain in the service and has been assigned to Wright Field, Dayton, Ohio, to take the place of Warrant Officer Michael J. Hurley, who has served so effectively for many years in an administrative capacity with the Materiel Division, and is retiring, effective December 31st.

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Second Lieut. Clyde Charles Harris, Air Reserve, now at Barksdale Field, La., was placed on active duty for a period of three years, effective January 2, 1937.

FOREIGN OPINIONS ON AVIATION, PRESENT AND FUTURE
From the Italian aeronautical journal "ALA D'ITALIA"
A continuation from the previous issue

GIANNI CAPRONI

There can be no doubt that metallic constructions would be more spread for some time if in examination of the much discussed wood-metal problem and in the consequent discussion for all-metal, wood and mixed constructions it had been possible to reason as pure designers and with the only worry of flying performance. But when the defense of the country is being dealt with, no designer can have first place, but the industrial man and with him the problem of series production in conditions of emergency like those imposed on a nation in war.

If we were all supporters of metal constructions * * * our potential production in cases of emergency would be reduced by half. * * * A mixed construction is quicker, more ductile and costs less. It does not last so long, but this cannot be considered as an inconvenience seeing that the average life of the prototype is shorter than the average life of a series machine. When flying will be more grown up and progress not so quick, we will have the inevitable inversion. Then the all-metal advent can only take place by taking advantage of the most progressed industrialization. * * *

A distinction must be made between civil and military aviation when examining the problem of the 500 Km. p.h. (311 m.p.h.) for standard airplanes. This speed can be reached in civil aviation without economical damages in the field of intercontinental links for non-stop flights of at least 2000-3000 kilometers. These flights can take place at a high altitude and they will be possible as soon as we will have been able to put into practice what the experimental flights have taught us. * * * In this field and for from 1000 to 2000 h.p., the liquid cooled engine will find its dominion. On the other hand from 500 h.p. downwards, the monopoly of the air cooled engines will become continually more marked, and it will be an open question between 500 and 1000 h.p.

All the conditions change for military aviation. The problem is no longer of material, but of men. The pilots in permanent service will certainly know how to train themselves for the requirements of the 500 Km. p.h. planes. But the professional pilots in a war are the least. The others of the reserves and the new pilots will have neither the time nor the chance to make their ability adequate to the extra fast craft. And they will be the majority. In this field it is to be seen up to what point the mass of men numerically prevalent can go up to the level of the equipment and to what extent the mass of the equipment will have to go down to the level of the men.

War is a general problem not only of quality. It is not easy to find the right point of equilibrium, namely, that point that ensures the most elevated product between the two factors.

We have no other help but experience. Taking into consideration that the future actions of bombardment will nearly always take place in the night and not forgetting past experience, I must come to the conclusion that the present average speeds of military aircraft will perhaps have to be lessened rather than increased.

GENERAL GEORGES REPPAS
Chief Commander of the Greek Air Force

I do not believe, at least for the very near future, that aerial combat tactics will be radically changed. In any coming war, like in 1918, military aviation will play a leading role, and aeronautical supremacy will mean a serious chance to win the game, but in order to realize a full victory, enemy territory has to be occupied by land army, and this task cannot be accomplished by aviation alone. It is a mere illusion to think that both land and navy forces could be entirely substituted by aviation. It is fine to own a powerful air force but it is better to be strong in the air and on the sea too.

As far as tactics is concerned, it is my opinion that the fighter being faster and of easier manoevre than the bomber and having improved its armament (more machine guns and even a small gun) it is consequently superior to the bomber which, before carrying out its mission, will have many obstacles to fight. So we can conclude that speed and range increase have not essentially changed aerial war tactics.

I believe that autogyros will have a few limited applications only, for instance: connection service. In the quite improbable case of an increase of its useful load it will perhaps be used for some other purposes. I do not believe in some military applications of the airship either, owing to its low speed and its huge bulk. I am convinced that the lot of aerial infantry landed by parachute is to be fully destroyed even before any serious enterprize can be carried out, its armament and ammunitions are too limited. At any rate, I think that it will be very efficient against a demoralized and routed army.

WALTER MITTELHOLZER
Director Manager of "Swissair."

In my opinion commercial flying at 500 Kms. p.h. will only be possible at a flying altitude from five to ten thousand metres. Meantime aerodynamic design of airframes must be improved and more efficient engines with centrifugal supercharger have to be realized. Anyhow speeds of about 500 kms. p.h. will not be of any economical value except in the case of very long trips.

I firmly believe that within fifteen years international air navigation will set at a flying height comparable to that of the actual world record. As for seaplanes I think they can stand against the increasing invasion of landplanes menacing their field of utilization, but it is also my opinion that very reliable twin-engined landplanes will always overcome seaplanes owing to the fact that landplanes take off and landing can be easily performed no matter how is the weather, whilst seaplanes will be always handicapped in rough sea. * * *

ASGER GRANDJEAN
Chief of Danish Royal Navy Air Service

It seems as if the development will further emphasize the difficulty in finding such types of aircraft as are suitable both for big countries and for countries with only limited defense problems. * * If the speed due to aerodynamical improvements in the coming years will increase still more, I believe that the aerial combat of the fighters will be discontinued, partly because the human constitution can't stand further strain and partly because the maneuverability of the aircraft is reduced with increasing speed.

The present armament consisting of 6-8 mm. machine guns is of too little effect and is most likely going to be replaced by machine guns of 20-30 mm. calibre. In countries with special interest in small targets (f. ex. ships) and in countries where the clouds most of the time are low, the dive bombing may be of increasing importance. At present there exists no efficient bomb sight for this bombing, but it is likely to be developed on the gyro principle.

At present the military aircraft seems better suited for fighting ground targets than targets in the air, and it may well be possible that many of the new types which the greater countries at present are acquiring in large quantities will be useless if called upon to fight against an air force of similar strength and standard. Peace-time maneuvers have not yet been able to verify that the theoretical foundation on which the aerial armament of the world has developed is the right one.

The speed is high but it is likely to be higher yet, but the armament is still the old one and rather out of date. The systematic attempts which the Russians started in landing infantry from aircrafts by means of parachutes are interesting and may possibly be of certain value as a supplement to the landing of troops from ships. For certain countries it may in the future be of advantage if they could lay out mines from aircraft. Regardless of the tactics employed in bombing attacks, I wish to say that this must be varied in each case in order to maintain the advantage of surprise.

CESARE PALLAVICINO
Chief Engineer at the Caproni Cab Works (Italy)

In my opinion there must be two distinct types of fighters:

1st type.- Small single-seater, very light, with short range and relatively small wing loading in order to allow high rates of climbing for towns and factories defense. To the high speed of the aggressor bomber planes it will oppose its easiness in diving attacks. The armament will consist both of large and small size machine guns. Such fighter will fully answer the English interceptor specification and its performance will entirely satisfy any exigency concerned.

2nd.- Multi-seater (more likely two than three-seater) twin-engined, very fast plane with great range and powerful armament, to be used to attack flying enemy formations.

It is to be foreseen that in future these two types will differ more and more until the mixing of their different performances into a single type will be impossible. The actual weight of the second menticned type is about two tons. In future, as a result of high range, high speed and more efficient armament, it will reach four and even five tons, with a consequent decrease of efficiency in diving attack which experience proves to be the best. Therefore it will be necessary to try some different methods of approach. Suggestions for such researches may be given by further advancements of armament.

For a military airplane the question of armament is a ground of research as much fertile as those of aerodynamic design and of mechanical efficiency. Automatic guns which may be directed and fired from a distance by a single operator acting a sort of key-board would be of outstanding importance. When experiments on that subject will reach positive results, then we will see a big transformation in the whole shape of that type of airplane.

The high speed actually developed by only very few prototypes will later become the normal speed of standard airplanes as well. First of all, I think we have to raise the flying altitude of aerial navigation. At 3500 meters with the same power, the speed is increased about 13 percent over the speed at sea level, only on account of air density. At 4500 meters the increase is 20 percent. That is a benefit which can be simply gotten by using a more efficient supercharger. * * *

As to aerodynamic design itself, no big improvements can be expected, at least for the moment. However, it will be interesting to know something more about aerodynamic's induction among the varicus parts of the airplane, which in some case has given propulsive effects. It is not improbable that when they will be fully known they may give suitable speed increase.

LOUIS P. WEILLER
General Manager, Gnome and Rhone Engines Ltd. Co.

To fly close to the ground at 700 kms. p.h. with no useful load at the cost of very high power is a wonderful performance both for constructors and pilots. To fly 10,000 kms. nonstop, to raise a plane 15,000 meters above the ground and carrying, without strain and glory, war material, goods or passengers 10,000 kms. far off, that is real future, and in my full knowledge of today's and tomorrow's aviation possibilities, the thought that this future will come true is comforting.

A 500 kms. p.h. commercial speed seems to be possible thanks to higher power per weight, to the ever increasing efficiency of engine, to advancement in aerodynamic design and to the efficient devices which allow suitable landing. In 1925 the power of air-cooled engine was hardly more than 500 h.p. Nowadays 1500 h.p. engines are a well accomplished feat. In 1925, the diameter of a 500 h.p. air-cooled radial engine was 57 inches. Actually a double-row radial air-cooled engine is only 56 in. and we can get 700 h.p. from the same engine measuring only 37 in. Step by step without particular innovations the average speed of 500 kms. p.h. will be attained. Progress in the following details will play an outstanding role:

Improvement of the octane value of fuel in order to make possible the use of higher compression ratio and higher fuel admission pressure in order to increase the engine power with no risk even at low altitude.

Speeding up of engine's cooling in order to eject, without difficulty, the heat due to superpower.

More extensive use of variable pitch propellers which allow to get from the engine the best efficiency in any case.

Refinements of cowling's shape in order to reduce the drag during high speed flying and fitting of fineness-breaking devices which give additional cooling for take off and climbing.

Suppression of spray by making smooth and continuous the shape of the plane, along with increased efficiency of superlifting devices at landing speed.

Improvements of engine and flying control instruments and blind-flying apparatus.

Further reduction of weight.

When cruising speed of civil and military aircrafts will be set at 500 kms. p.h., the question of airports equipment will be strongly of actuality and cement runways will not be any more a sheer luxury or a curiosity. High powered air-cooled engines will show more clearly their superiority for high speed, as the question of engine cooling consists particularly in leading fresh air towards its heated parts. This becomes easier when speed and air pressure in the cowling entrance are high, the deflectors being then in full efficiency.

As far as aerial navigation at 15,000 meters of altitude is concerned, I think that this is not only possible but necessary when one thinks of cruising speed from 700 to 1000 kms. p.h. for long non-stop flights. Aerodynamic design for aircrafts is approaching perfection and quite soon its improvement will be but insignificant. For any further increase of speed it will be necessary to fly in more favorable conditions of air resistance as only very high altitude can offer. The outstanding problem will be of supplying with air the engine, the pilot and the passengers at normal pressure and temperature. This is not quite impossible but has still to be worked out. According to my opinion high altitude flying is not necessary when the aim is to link Paris to New York in ten hours, but it will be so when our aim will be of improving such achievement, which five years hence will appear amazing but ten years later will make us smile.

ANGELO AMBROSINI

President of the "Societa Aeronautica Italiana."

From a general point of view I must say that at the present time aviation has only begun to leap forward. Notwithstanding all the talking that is going on about marvelous improvements, we have done nothing more than a beginning, a mere scratching on the surface of things. Our energies have not always been properly used and have not been put to contribution only towards a constant improvement and progress. A proof of this is in the many opportunities and possibilities that still stand before us. That is why I think that to standardize our flying machines on a 500 per hour basis is not difficult and not an aim far to be reached. It will be sufficient to consider more seriously and with greater confidence the interesting problem of super-lifting devices and, awaiting new solutions, improve the present super-lifting devices so that they should not alter the ideal profile for maximum speed and maintain unchanged the present lift coefficient. The rest: constant altitude power and adaptation of the grounds is simply a question of 'will'. If those who are responsible for it and have the required capacity and experience will tackle the problem with good will and enthusiasm, we shall see very soon new wonders.

A judgement on the two kinds of engines can be given only through experience. In the first place: Why 'water cooling' and not 'liquid' cooling? If, in 1936, we still speak of water it is... air that shall have the best of us. It is a matter of course that as regards simplicity, safety, weight and little vulnerability, air has more than one advantage over the liquid system but, according to me, only for a given power and reduced diameter. To smooth out and refine wings and body to spoil them afterwards with 'pans' of a metre and a half diameter has no common sense.

All well and good the improvement brought about by Magni and the N.A.C.A. with their rings, and that which Krupp (as it is said) promises to realize with an even more brilliant solution, but there still remains 50% of frontal resistance offered by the engines and which they must support.

I would incline for a half-way solution. Air up to 300/400 h.p. - exclusively radial models- no cylinders in row (that is some well cooled against some not cooled at all)- the engine as much as possible of the 'square type' so as to reduce its diameter (the speed range has no importance as there are reduction gears) - seven cylinders up to 200 h.p.; 14, on two rows, for greater powers and up to said limit. As regards 'liquid' cooling it is time to wake up. To say nothing of the 'evaporating' system which is very interesting but, as it seems, presents now a few drawbacks, as regards fitting, for its use in aviation, we have 'glycoletilene.' This last is particularly well suited for aviation, where it will triumph and not only for the economy in weight, for its insensibility to low temperature, and for its property of reaching boiling point towards 200 centigrades, which allows the engine to tolerate very high temperatures thus realizing an economy of fuel and an increase in power.

Engines cooled by glycoletilene - circulating in canalizations made out in the casting, compressed pump - no piping and joints outside so as to get as near as possible to the low vulnerability of the 'air' type. Opposite cylinders (eight-twelve-sixteen) so as to have a perfect balance of the efforts - of the masses - high specific horse power - reduced encumbrance, so as to allow the fitting of the whole engine in the wing (thick monoplane wing) between ribs elongated propeller axe so as to allow the setting of the propeller on the wing trailing edge.

By this formula we shall obtain: perfect aerodynamic streamlining of the plane - concen-

tration of the masses closer to the baricenter- no tampering with the leading edge of the wing which shall, at last, act as it had been conceived - increased efficiency of the propeller- easy inspection and revision (over and under) of the engine - economy of cowling as they will serve as ventral and dorsal covering of the wings.

I do not want to close without mentioning another point which, as an Italian and aircraft manufacturer, is very dear to me: the problem of metal-wood. On this matter I am unrelentingly decided: Wood! at least for many years more. Nothing is more absurd - and may even, in a certain way, become hurtful - than to continue to pretend that everybody is in just the same conditions and can act as others do. * * We shall one day find how it is possible to reduce weight even by using wood. My company has built wooden monocoque - with 100% national wood, not imported stuff as is said by those who are against the use of wood - which can very well sustain comparison. We are projecting a plane with special features which are considered 'daring', made entirely of wood, and we feel sure of its satisfactory behaviour. The best records of the Italian aircraft have been scored by wood. I do not want with this to pass as a wood maniac, but only point out that, at the stage we have reached in the evolution of aeronautics, wood can still, and well, hold its place. * * *

Lastly: make room to the young. Understand them, draw them closer to us. Kindle their enthusiasm, their faith that are their living poesy. Let us not be afraid of the future, - not overfond of the past. Man crosses from old to new things over a bridge made by the unrelenting springing up of young, fresh, enthusiastic energies.

GEORGE MADELUNG, of the Stuttgart's Polytechnic

I do not believe that wood or mixed constructions will succeed in eliminating completely metal constructions. In Central Europe's temperate climate, wood as well as mixed constructions are perfectly suited. Their prototypes are often less expensive than the corresponding all metal machines, and this holds true both for serial production as well as for reparations made by small factories.

The use of stainless steel will increase. But its weight makes it not so well suited for strong stressed-skin constructions. There is the superiority of light metals, among which, in the first place, we find duralumin. Whether this last one and its alloys will be some day replaced by magnesium and its alloys it is not now easy to foresee. It will depend on a further increase in chemical and mechanical resistance of magnesium.

For the future I do not foresee a big success for biplanes as high speed airplanes. Even today they are not so appreciated compared to monoplanes against which they have the following disadvantages: small wing depth and no thickness, bigger number of constructions pieces, unpractical fuselage attachment.

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EXTENDED ACTIVE DUTY FOR AIR RESERVE OFFICERS

Under Special Orders of the War Department, recently issued, the active duty tours of 26 second lieutenants of the Air Reserve, now stationed at Barksdale Field, Shreveport, La., were extended for various periods up to nearly three years. They will continue to be stationed at Barksdale Field, viz:

To June 15, 1939

Willis Griffith Carter	John Riley Kane
David Gerard Desmond	Arthur E. Livingston
William Eades	Richmond A.Livingstone
Clarence T. Edwinson	James Crawford McGehee
Harney Estes, Jr.	Alexander F. Sangster
Willard Jones Foley,Jr.	Frank Beard Scott
John F. Guilmartin	Robert F. Strickland
J. W. Hinton	

To June 30, 1939

Moultrie P. Freeman	John William Graham
Jay Lanham Gentry	Charles Duncan Jones

To July 1, 1939

Boatner R. Carney	Lee Williams
Robert F. Worden	

To October 14,1939

Henry Ovide Bordelon	Craven Clark Rogers
Edgar Ross Camp	John Allen Way

The active duty tours of second lieutenants, Air Reserve, now serving at various other Air Corps stations, were extended, as follows:

To June 15, 1939

Martin Ansel Bateman	Hawaiian Department
William Hogan Clark	" "
Henry Russell Spicer	" "
Ormond John Mosman	Fort Lewis, Wash.
David Reynold Nelson	" " "
Robert Ashman	March Field, Calif.
Donald Wm. Eisenhart	" " "
William A. Hatcher, Jr.	" " "
Podge McCauley Reed	" " "
Frederick Wm. West,Jr.	" " "
William Walter Pannis	Hamilton Field, Calif.
Lloyd A. Walker, Jr.	" " "
Wilburn Roger Hunt	Selfridge Field, Mich.

To June 30, 1939

John Wendel Massion	Mitchel Field, N.Y.
James Linn Travis	March Field, Calif.

To July 1, 1939

Theodore M. Melden	Mitchel Field, N.Y.

To October 14, 1939

Wilbur Maurice Denham	Mitchel Field, N.Y.
Murray B. Dilley, Jr.	" " "
Vernet Vucasin Poupitch	" " "
John Gebelin, Jr.	Selfridge Field, Mich.
Maurice Edward Glaser	Hamilton Field, Calif.
Roger Merriam Reynolds	Hawaiian Department
James Thomas Connally	March Field, Calif.

The active duty tour of 2nd Lieut. Elmer Earle McKesson, transferred from Selfridge Field to Brooks Field, was extended to June 30, 1939.

Second Lieuts. Edwin Davis Avary, Jean Rogers Byerly, Calvin Ely Peeler and William Stephen Pocock, Jr., under orders to sail about December 19th for Panama (from duty at Hamilton Field, Calif.) will continue on active duty until November 15, 1939. Second Lieut. James Austin Philpott is continued on active duty at Hamilton Field until June 30, 1939.

MODEL PLANE FLIES FOUR MILES

An airplane at Kelly Field is nothing unusual, but one that is only 48 inches long, with a wing spread of 64 inches and weighing only 3½ pounds, powered with a gasoline engine which drives it on flights up to four miles, at an altitude of about 1500 feet, is something that even veteran flyers and mechanics at the field will stop and gaze after with interest. Such a plane has been taking off from the field on test flights on Sundays and in the late afternoons when regular training flights are at the minimum. The plane was constructed by Private William Hewgley, of the 12th Air Base Squadron. Hewgly, a native of Paris, Texas, has been experimenting on model airplane building since he enlisted at Kelly Field two years and eight months ago.

His first attempts were with rubber-band driven models, which require a many-stranded rubber band attached to the propeller. This experience gave the knowledge he needed to build a power-driven model. With the aid of William Osborne, 142 Harriman Place, a friend, a small Tom Thumb, one-cylinder gasoline engine was purchased, and Hewgley, Osborn and another soldier, Clem M. Morgan, set out on the model construction. Working on week-ends and off-duty hours, Hewgley built the plane of balsa, spruce and white pine woods, and pieces of spring wire and small bits of aluminum. The wings and fuselage are covered with bamboo paper which, when it is treated, shrinks in two directions after it dries, thus making a perfectly tense wing and fuselage covering. Hewgley estimated that about thirty days were required in building the plane.

When the plane is to be flown, the wings are attached to the other part of the plane with a strong rubber band, which is wrapped around the center part of the wings and under the fore part of the fuselage. This, an invention of Hewgley's, allows for less shock when there is a crack-up, for occasionally they do occur.

During a recent flight, the plane was caught by a wind current that carried it away from the field. It was found four miles away in a tree near the Castroville Road. Because of the rubber band, the wings were only slightly damaged and were easily repaired. It was estimated that the plane was in the air about 30 minutes and had traveled at a rate of about eight miles an hour. The engine which drives the plane is smaller than a man's hand. Its one cylinder has only a 13/16th bore and a 7/8-inch stroke. Its weight, including three dry cell batteries, coil and condenser, is 18 ounces. It is mounted on 1/16th-inch aluminum. Its fuel is composed of three parts gasoline to one part oil. The fuel tank holds only 1½ ounces of fuel.

Usually the plane flies in large circles and can be observed from the ground. This is due to the propeller torque which causes the plane to circle in the opposite direction in which the propeller turns. By luck, Hewgley's model seems to "bank" naturally in the air as if a pilot were in the plane and was making a turn. And when the plane lands it "levels off" at just the right angle instead of "nosing over" or "ground looping," as is the case sometimes in planes not under control.

(Continued on Page 23)

NOTES FROM THE WASHINGTON OFFICE

Air Corps officers from various stations who visited the Chief's Office during the course of flights, while on leave, etc., were as follows: Major Vincent J. Meloy, from Langley Field, while on leave.- Brigadier General George H. Brett, Lieut. Colonel Richard H. Ballard, Major George H. Beverley, Captain Robert S. Israel, Jr., and 1st Lieut. William H. Tunner, from the Panama Canal Department, who arrived by boat for the purpose of ferrying to Panama several different types of planes for use on the Isthmus.- Captain Milton J. Smith, from Shoen Field, Fort Benjamin Harrison, Ind., for temporary duty in connection with Reserve matters.- 1st Lieut. L. S. Kuter, on navigation flight from Maxwell Field.

Lieut. Colonel Rosenham Beam left December 8th for the West Coast to ferry to the Boston Airport a North American BT-9.

Major Norman D. Brophy, up to recently on duty with the Colorado National Guard Air Service, Denver, reported for duty in the Plans Section. He lives at the Wardman Park Hotel.

Majors Leland S. Miller and Karl S. Axtater returned from leaves of absence.

Captain Robert V. Laughlin, until recently on duty in the Patents Section, was assigned to other duties in the Judge Advocate General's Department. His duties in the Chief's Office were taken over by Captain John J. Honan, J.A.G. Dept.

Captain Randolph Williams returned to Langley Field.

Major Hubert V. Hopkins, from Wright Field, reported for temporary duty for a series of conferences with the Aeronautical Board.

Captain M.E. Gross left for the West Coast to ferry a plane from Inglewood, Calif.

Lieut. Colonel L. B. Jacobs departed on several days' leave.

Major Earl Wenworth Moss, Air Reserve, of Fort Wayne, Ind., who is connected with the Heilbroner Baseball Information Bureau, reported for two weeks' active duty in the Information Division.

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Second Lieut. William Robert Graham, Air Reserve, of Fruitland, Idaho, was ordered to extended active duty at Brooks Field, Texas, for three years from December 15, 1936.

THE ROSTER

No.	Date		Name	Rank	Place of Jump
	1919				
1	July	21	Henry Wacker	Civilian	Chicago, Ill.
2	July	21	John Boettner	Civilian	Chicago, Ill.
	1920				
3	August	24	William O'Connor	Civilian	Dayton, Ohio
	1922				
4	October	20	Harold R. Harris	1st Lieut. Air Corps	McCook Field, Ohio
5	November	11	Frank B. Tyndall	1st Lieut. Air Corps	Seattle, Washington
	1924				
6	April	23	Wilfred Bottomfield	Civilian	San Antonio, Texas
7	May	13	Eugene H. Barksdale	1st Lieut. Air Corps	Fairfield, Ohio
8	June	5	Will W. White	2nd Lieut. Air Corps	Kelly Field, Texas
9	June	13	Walter Lees	Lieut. Air Corps Reserve	Dayton, Ohio
10	June	18	John A. Macready	1st Lieut. Air Corps	Dayton, Ohio
11	July	11	A. R. Crawford	2nd Lieut. Air Corps	Kelly Field, Texas
12	August	29	W. E. Goggin	Private, Air Corps	Bolling Field, D.C.
13	August	29	L. L. Koontz	1st Lieut. Air Corps	Bolling Field, D.C.
14	October	16	W. M. Coles	Gunner, U.S. Navy	Coronado, Calif.
15	November	4	William E. Lynd	Captain, Air Corps	Kelly Field, Texas
	1925				
16	March	5	Charles D. McAllister	2nd Lieut. Air Corps	Kelly Field, Texas
17	March	5	Charles A. Lindbergh	Flying Cadet, Air Corps	Kelly Field, Texas
18	March	20	Frank O'D. Hunter	1st Lieut. Air Corps	Dayton, Ohio
19	April	6	C. V. Mix	Sergeant, Marine Corps	Quantico, Va.
20	April	10	J. Thad Johnson	1st Lieut. Air Corps	Eaglesmere, Pa.
21	May	22	C. H. Schildhauer	Lieut. U.S. Navy	Lakehurst, N.J.
17	June	2	Charles A. Lindbergh*	2nd Lieut. Air Reserve	St. Louis, Mo.
22	June	28	Mrs. Irene McFarland	Civilian	Cincinnati, Ohio
23	August	17	Kirtley J. Gregg	2nd Lieut. Air Corps	Lavernia, Texas
24	October	1	Ford O. Rogers	Captain, Marine Corps	Langley Field, Va.
25	October	10	Fred C. Nelson	1st Lieut. Air Corps	St. Louis, Mo.
26	November	11	Leonard S. Flo	2nd Lieut. Air Reserve	Wright Field, Ohio
27	November	11	John McGlynn	Private, Air Corps	Wright Field, Ohio
	1926				
18	March	5	Frank O'D. Hunter*	1st Lieut. Air Corps	Selfridge Field, Mich.
7	March	24	Eugene H. Barksdale*	1st Lieut. Air Corps	McCook Field, Ohio
28	May	10	Horace M. Hickam	Major, Air Corps	Langley Field, Va.
29	May	10	Harold Geiger	Major, Air Corps	Langley Field, Va.
30	June	2	S. E. Ingersoll	Lieut. (JG) U.S. Navy	Pensacola, Fla.
31	June	17	J. T. Hutchison	1st Lieut. Air Corps	McCook Field, Ohio
32	June	17	Paul Stanley	Civilian Observer	McCook Field, Ohio.
33	July	5	Walter M. Williams	Capt. Tenn. National Guard	Nashville, Tenn.
34	July	5	John W. MacKenzie	2nd Lieut. Tenn. Nat'l Guard	Nashville, Tenn.
35	July	14	J. F. Coburn	Machinist Mate, U.S. Navy	Oceanside, Calif.
36	July	24	Victor E. Bertrandias	1st Lieut. Air Corps	Baltimore, Md.
37	August	8	John I. Moore	1st Lieut. Air Corps	Georgetown, Texas
17	September	16	Charles A. Lindbergh*	Air Mail Pilot	Ottawa, Ill.
38	September	17	C. L. Williams	1st Lieut. Air Corps	Hawaii
17	November	3	Charles A. Lindbergh*	Air Mail Pilot	Covell, Ill.
39	November	12	Charles E. Widmer	Air Mail Pilot	Hollywood Hills, Calif.
40	December	23	Warren D. Williams	Air Mail Pilot	Bowling Green, Ohio
	1927				
41	January	18	Roderic M. Krider	Flying Cadet, Air Corps	Kelly Field, Texas
42	January	18	George T. Shleppy	Flying Cadet, Air Corps	Kelly Field, Texas
43	February	3	Fabian L. Pratt	Captain, Medical Corps	Brooks Field, Texas

*Repeater Jump

No.	Date		Name	Rank	Place of Jump
	1927				
44	February	3	Lawrence C. Craigie	1st Lieut. Air Corps	Brooks Field, Texas
45	February	15	Carl G. Ashley	Private, Air Corps	Galveston, Texas
46	February	27	Herbert A. Dargue	Major, Air Corps	Buenos Aires, Argentina
47	February	27	Ennis C. Whitehead	1st Lieut. Air Corps	Buenos Aires, Argentina
48	February	28	O.M. Darling	Lieut. U.S. Navy	San Diego, Calif.
49	March	26	E. B. Wilkins	Lieut. U.S. Navy	Augusta, Ga.
50	March	26	G. F. Lawhon	A.M. Mate, U.S. Navy	Augusta, Ga.
51	April	15	Stephen A. McClellan	Lieut. Marine Corps	Bolling Field, D.C.
52	April	27	Stewart W. Towle	1st Lieut. Air Corps	Champaign, Ill.
53	May	4	Hawthorne C. Gray	Captain, Air Corps	Golden Gate, Ill.
54	May	13	George G. Finch	1st Lieut. Air Corps	Edwards, Miss.
55	May	28	Lewis H. Brereton	Major, Air Corps	Reynoldsburgh, Ohio
56	May	28	Bernard A. Bridget	1st Lieut. Air Corps	Reynoldsburgh, Ohio
57	May	28	Clyde M. Taylor	Master Sergeant, Air Corps	Reynoldsburgh, Ohio
58	May	28	Fred P. Miller	Staff Sergeant, Air Corps	Reynoldsburgh, Ohio
59	June	20	Eldo Peterman	1st Lieut. Calif. Nat'l G'rd	Los Angeles, Calif.
60	June	20	H. J. Cooper	Captain, Medical Corps	Los Angeles, Calif.
61	July	10	Art Smertz	Civilian	Ogden, Utah
62	July	13	C. B. Whitney	Lieut. Air Reserve	Salt Lake City, Utah
63	July	13	Paul L. Woodruff	Staff Sergeant, Air Corps	Salt Lake City, Utah
64	July	13	Benjamin W. Craycraft	Civilian, ROTC Unit	Chanute Field, Ill.
65	August	15	Robert Seger	Civilian	Morton Grove, Ill.
66	August	18	Robert G. Fry	Sergeant, Marine Corps	Camp McMurray, China
67	August	23	John E. Heyweng	Civilian	Lake Sebasticook, Maine
68	September	16	Valentine Gephart	Civilian	Grampion, Pa.
69	September	25	Fritz H. Grifno	Technical Sergeant, A.C.	Genoa, Texas
70	October	5	A.H. Gilkeson	Major, Air Corps	Edgewood Arsenal, Md.
71	October	23	Charles R. Bowman	Civilian	Tehachapi Mts., Calif.
72	October	25	Frank C. Sutton	Lieut. U.S. Navy	San Diego, Calif.
73	October	27	J. D. Cleveland	Flying Cadet, Air Corps	Kelly Field, Texas
74	October	27	E. A. Sanborn	Flying Cadet, Air Corps	Kelly Field, Texas
75	November	9	Donald H. Stuart	Lieut. Air Reserve	Norfolk, Va.
58	November	9	Fred P. Miller*	Sergeant, Air Corps	Norfolk, Va.
76	November	9	Arvin B. Jewell	Sergeant, Air Corps	Norfolk, Va.
77	November		Ernest E. Dryer	Civilian	New Mexico
78	December	12	George W. Hansen	Flying Cadet, Air Corps	Brooks Field, Texas
79	December	25	James Rutledge	Air Mail Pilot	San Francisco, Calif.
	1928				
80	January	22	Gene Althoff	Civilian Observer	Wright Field, Ohio
81	January	24	Amberse Banks	Air Mail Pilot	Willow Grove, Pa.
82	February	14	Louis M. Bourne	Major, Marine Corps	Reidsville, Va.
77	February	23	Ernest E. Dryer*	Civilian	Ypsilanti, Mich.
83	March	24	Walter C. Green	Lieut. U.S.Naval Reserve	Squantum, Mass.
84	March	24	Samuel G. Colwell	Lieut. U.S.Naval Reserve	Squantum, Mass.
85	March	27	J. M. Carson	Ensign, U.S. Navy	Pensacola, Fla.
79	March	27	James Rutledge	Air Mail Pilot	Orindo, Calif.
86	April	6	Barnett T. Talbott	Lieut. U.S. Navy	Washington, D.C.
87	April	22	James T. Moore	Captain, Marine Corps	Camp McMurray, China
88	April	23	Douglas M. Swisher	Flying Cadet, Air Corps	Kelly Field, Texas
89	April	26	Lawrence J. Carr	1st Lieut. Air Corps	Clark Field, P.I.
90	May	5	Stanley M. Umstead	1st Lieut. Air Corps	Mitchel Field, N.Y.
91	May	27	Al Wilson	Civilian	Hollywood Hills, Calif.
92	May	31	Carl K. Wollam	Civilian	Westmoreland City, Ohio
93	June	8	Maxwell Balfour	1st Lieut. Air Corps	Mitchel Field, N.Y.
94	June	8	John H. McCormick	1st Lieut. Signal Corps	Mitchel Field, N.Y.
95	June	13	Wm. H. Shephard	Flying Cadet, Air Corps	San Juan Canyon, Calif.
96	June	26	Lemuel T. Cleaves	Ensign, U.S. Naval Reserve	Vallejo, Calif.
97	July	1	William L. Campbell	Captain, Air Reserve	Kansas City, Mo.
98	July	4	Ralph C. Wensinger	Civilian	Chippewa Lake, Ohio
99	July	19	E. C. Ewen	Lieut. U.S. Navy	Pensacola, Fla.
100	August	3	William J. Crosswell	Flying Cadet, Air Corps	Kelly Field, Texas
101	August	9	Byron E. Gates	1st Lieut. Air Corps	Elkins, West Virginia
102	August	13	Raymond L. Winn	Flying Cadet, Air Corps	Nuevo, Calif.
103	August	17	George E.K. MacKinsey	Civilian	Bristol, Pa.
104	September	14	Jewell S. Wilson	Private, Air Corps	Fresno, Texas
105	September	14	H. W. Pennington	2nd Lieut. Air Corps	Fresno, Texas
106	September	14	Sheldon B. Yoder	Flying Cadet, Air Corps	Castroville, Texas
107	September	25	Roger V. Williams	2nd Lieut. Air Corps	Rockwell Field, Calif.

*Repeater Jump

To be continued

DEATH OF LIEUT. COL. GEO. E.A. REINBURG, RETIRED

The death in a far-off land of Lieut. Colonel George E.A. REINBURG, U.S. Army, Retired, removed another name from the roster of the "Early Birds" of aviation. Colonel Reinburg's death on December 6th occurred at Hangchow, China, where he was chief instructor at the Chinese Aviation School.

A native of the District of Columbia, Col. Reinburg was born on September 25th, 1888.

Commissioned a 2nd Lieutenant of Cavalry in April, 1912, Col. Reinburg served as commanding officer of Troop L, 9th Cavalry; Assistant Regimental Adjutant and also Squadron Quartermaster. He served in New Mexico and Arizona with the 9th Cavalry until October, 1915, when he was transferred to the 7th Cavalry.

In November, 1915, he was attached to the Aviation Section, Signal Corps, as an aviation student and, upon the completion of the course of instruction, received the rating of Junior Military Aviator. Ordered in August, 1916, to duty with the 1st Aero Squadron at Columbus, New Mexico, he served with this organization as a member of the Punitive Expedition into Mexico under General Pershing, his duties being Officer in Charge of Flying.

Upon returning to the United States territory he was stationed at San Antonio, where he received advanced flying training; served as Supply Officer of the 4th Aero Squadron and later organized and commanded the 9th Aero Squadron.

The exigencies of the war emergency led to Col. Reinburg being shifted from place to place where his ability and experience were most needed. For a brief time he served as Officer in Charge of Flying at Mt. Clemens, Mich.; then he commanded the Signal Corps Aviation School at Scott Field, Belleville, Ill.; then the Flying School at Park Field, Tenn.; following which he attended and was graduated as Aerial Gunnery Pilot from the Aerial Gunnery School at Taliaferro Field, Fort Worth, Texas. He commanded this School until July, 1918, when he was ordered to duty overseas.

After completing advanced flying training at the 3rd Aviation Instruction Center, and graduating from the Aerial Gunnery School at St. Jean de Monts, he served as a pilot with the 2nd Pursuit Group. In October, 1918, he was assigned as Commanding Officer of the 2nd Day Bombardment Group. Upon the demobilization of this Group in April, 1919, Col. Reinburg returned to the United States, and after serving for several weeks in the Office of the Director of Air Service, Washington, D.C., he was assigned to duty, August 1, 1919, as Commanding Officer of the Air Service Depot at Fairfield, Ohio.

In September, 1921, Col. Reinburg was assigned to duty in the Supply Group, Office of the Chief of Air Service. In July, 1922, he was assigned to command Bolling Field, D.C., and in May of the following year he was transferred to duty in the Philippines where he served as Air Officer of the Philippine Department. Upon the expiration of his two years of service in the Islands, he was assigned to duty at Chanute Field, Rantoul, Ill., as Executive Officer. In October, 1926, he was assigned to duty as Air Officer of the 7th Corps Area at Omaha, Neb., which duty he performed until July, 1927, when he was assigned to duty as Assistant Military Attache, American Embassy, Berlin, Germany. This duty terminated in June, 1931, and he was assigned to Maxwell Field, Montgomery, Ala. Failing health necessitated the retirement of Col. Reinburg in April, 1932.

Colonel Reinburg was repeatedly commended by his superior officers for his efficiency.

The sincere sympathy of the Air Corps is extended to his bereaved family.

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Model Airplane Flies 4 Miles

(Continued from Page 20)

Hewgley's experience in building models previously, he said, had given him a knack in getting the right balance, which in more technical terms might be aerodynamics. Due to the success of his first venture in power modeling, Hewgley said he was planning on building another plane, to be controlled by radio. He has enlisted the aid of his hangar chief, Staff Sergeant John Lewellyn, who is in charge of Hangar No. 12 of the 12th Air Base Squadron. With the aid of Sergeant Lewellyn and other radio experts, Hewgley hopes to develop a power model plane that can be controlled from the ground.

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22ND PHOTO SECTION MAPS SAN ANTONIO AREA

The 22nd Photo Section, commanded by 1st Lieut. Charles F. Densford, is working on an extensive photographic mapping project for the Commanding General of the Air Corps Training Center.

This map, to be laid as one complete mosaic, will include Kelly Field, Brooks Field, San Antonio, Randolph Field, and New Braunfels, Texas, and all points between. It is estimated that more than 700 exposures will be made. The area covered will be approximately 500 square miles.

The mosaic, when laid, will be about twenty feet long and ten feet wide. It is to be laid in two sections, then each section reduced by half, and the two reductions fitted again into a composite. The laying of the mosaic is being supervised by Staff Sergeant Charles H. Coy.

A special oxygen tank was installed in the O-25A airplane for use of both pilot and observer, since the mission is being conducted at 15,000 feet. First Lieut. Densford and Staff Sergeant Herman L. Chestnutt, photographer, have already flown seven hours on the project. Bad weather has held back the progress, but the job is now about 70% complete.

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Captain Robert M. Montague, Field Artillery, from Fort Sill, Okla., recently delivered a lecture to the students of the present class at the Advanced Flying School, Kelly Field, Texas, on the subject of "Air Corps Cooperation with Field Artillery." This subject is the heaviest one in the curriculum of the school and consists of 24 hours, taught by Captain R.E. Randall.